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Claims

[c1] A diverter system comprising:
opposite sidewalls;
a plurality of wheels arranged between said opposite sidewalls, said wheels being selectively pivotable about respective generally vertical axes to divert or steer articles being conveyed therealong; and
a motorized roller having an internal motor operable to rotate a roller portion of said motorized roller relative to a shaft portion of said motorized roller, said motorized roller being positioned generally along said plurality of wheels and operable to rotatably drive said plurality of wheels via a plurality of drive members reeved around said motorized roller and respective ones of said wheels.

[c2] The diverter system of claim 1, wherein said wheels are pivotally mounted to a base plate positioned between said opposite sidewalls.

[c3] The diverter system of claim 2, wherein said motorized roller is positioned beneath said base plate, said base plate including a plurality of slots to receive said drive members therethrough.

[c4] The diverter system of claim 1, wherein said at least one row comprises two rows, said wheels of said two rows being rotatably driven via said motorized roller.

[c5] The diverter system of claim 4, wherein said motorized roller is positioned generally along one of said rows and an idler roller is positioned generally along the other of said rows.

[c6] The diverter system of claim 5, wherein said motorized roller is operable to rotatably drive said idler roller and said wheels of said one of said rows, while said idler roller rotatably drives said wheels of said other of said rows via a plurality of drive members reeved around said idler roller and respective ones of said wheels of said other of said rows.

[c7] The diverter system of claim 1 including a steering system operable to selectively pivot or steer said wheels, said steering system comprising a rotatable drive gear and at least one rack member extending at least partially along said row of wheels, wherein rotation of said drive gear causes a corresponding translational movement of said rack member and wherein said corresponding translational movement of said rack member causes a corresponding pivotal movement of at least some of said wheels of said row.

[c8] The diverter system of claim 7, wherein at least one of said wheels includes a gear plate that engages said drive gear, said at least one of said wheels drivably engages said at least one rack member, wherein rotation of said drive gear causes pivotal movement of said at least one of said wheels and wherein said pivotal movement of said at least one of said wheels causes said corresponding translational movement of said rack member.

[c9] The diverter system of claim 8, wherein said wheels include gear portions which drivably engage a corresponding gear portion of said at least one rack member.

[c10] The diverter system of claim 8, wherein said at least one row comprises at least two rows and said at least one of said wheels comprises a wheel of two of said at least two rows, wherein rotation of said drive gear causes pivotal movement of said two wheels and wherein said pivotal movement of said two wheels causes said corresponding translational movement of said rack member.

[c11] The diverter system of claim 8, wherein said wheels are rotatably mounted to respective mounting assemblies, which are pivotally mounted at said diverter system via respective pivot shafts of said mounting assemblies.

[c12] The diverter system of claim 11, wherein each said

mounting assembly comprises a pair of side members which each comprise a shaft portion and an axle portion, said axle portions rotatably attaching at respective ends of said wheel, said shaft portions joining together to form said pivot shaft.

[c13] The diverter system of claim 1, wherein said opposite sidewalls of said diverter system are configured to mount to and between opposite sidewalls of a conveyor section.

[c14] The diverter system of claim 13 including a control for controlling said diverter system, said control being mounted at the conveyor section and generally beneath the location where said sidewalls of said diverter system are mounted.

[c15] A diverter system comprising:
opposite sidewalls;
a plurality of wheels arranged in at least one row, said plurality of wheels being pivotally mounted to a base plate extending between said opposite sidewalls; and
a steering system operable to selectively pivot or steer said wheels, said steering system comprising a rotatable drive gear and at least one rack member extending at least partially along said row of wheels, wherein rotation of said drive gear causes a corresponding translational

movement of said rack member and wherein said corresponding translational movement of said rack member causes a corresponding pivotal movement of at least some of said wheels of said row.

[c16] The diverter system of claim 15, wherein at least one of said wheels includes a gear plate that engages said drive gear, said at least one of said wheels drivably engages said at least one rack member, wherein rotation of said drive gear causes pivotal movement of said at least one of said wheels and wherein said pivotal movement of said at least one of said wheels causes said corresponding translational movement of said rack member.

[c17] The diverter system of claim 16, wherein said wheels include gear portions which drivably engage a corresponding gear portion of said at least one rack member.

[c18] The diverter system of claim 16, wherein said at least one row comprises at least two rows.

[c19] The diverter system of claim 18, wherein said at least one of said wheels comprises a wheel of two of said at least two rows, wherein rotation of said drive gear causes pivotal movement of said two wheels and wherein said pivotal movement of said two wheels causes said corresponding translational movement of said rack

member.

[c20] The diverter system of claim 15, wherein said wheels are rotatably mounted to respective mounting assemblies, which are pivotally mounted along said rack member via respective pivot shafts of said mounting assemblies.

[c21] The diverter system of claim 20, wherein each said mounting assembly comprises a pair of side members which each comprise a shaft portion and an axle portion, said axle portions rotatably attaching at respective ends of said wheel, said shaft portions joining together to form said pivot shaft.

[c22] The diverter system of claim 15, wherein said wheels are rotatably driven via a motorized roller and a plurality of drive members reeved around said motorized roller and a respective one of said wheels.

[c23] The diverter system of claim 22, wherein said at least one row comprises two rows, said wheels of said two rows being rotatably driven via said motorized roller.

[c24] The diverter system of claim 23, wherein said motorized roller is positioned generally along one of said rows and an idler roller is positioned generally along the other of said rows.

[c25] The diverter system of claim 24, wherein said motorized roller is operable to rotatably drive said idler roller and said wheels of said one of said rows, while said idler roller rotatably drives said wheels of said other of said rows via a plurality of drive members reeved around said idler roller and respective ones of said wheels of said other of said rows.

[c26] The diverter system of claim 15, wherein said diverter system comprises a modular diverter system, said opposite sidewalls of said diverter system are configured to mount to and between opposite sidewalls of a conveyor section.

[c27] The diverter system of claim 26 including a control for controlling said diverter system, said control being mounted at the conveyor section and generally beneath the location where said sidewalls of said diverter system are mounted.

[c28] A method for diverting articles that are being conveyed along a conveying surface, said method comprising:
providing a conveyor section having a conveying surface operable to convey articles in a first direction of conveyance;
providing a diverter system adjacent to said conveying surface, said diverter system having a plurality of wheels

arranged in at least one row between opposite sidewalls and a motorized roller having an internal motor operable to rotate a roller portion of said motorized roller relative to a shaft portion of said motorized roller, said motorized roller being positioned generally along said plurality of wheels and being drivably connected to at least some of said wheels via respective drive members;

conveying an article in said first direction of conveyance from said conveying surface onto said wheels of said diverter system;

rotating said roller portion of said motorized roller via activation of said internal motor to rotationally drive said wheels of said diverter system via said drive members, whereby rotation of said wheels conveys the article over said diverter system; and

pivoting said wheels of said diverter system about respective pivot axes to convey articles in a second direction of conveyance that is different from said first direction of conveyance.

[c29] The method of claim 28, wherein said diverter wheels are arranged in two rows, said motorized roller being positioned generally along one of said rows and an idler roller being positioned generally along the other of said rows.

[c30] The method of claim 29, wherein rotating said roller portion rotationally drives said wheels of said one of said rows via respective drive members and rotationally drives said idler roller, said idler roller rotationally driving said wheels of said other of said rows via a plurality of drive members reeved around said idler roller and respective ones of said wheels of said other of said rows.

[c31] The method of claim 28 including steering said wheels via rotation of a rotatable drive gear of a steering system, whereby rotation of said rotatable drive gear causes a corresponding translational movement of a rack member and whereby said corresponding translational movement of said rack member causes a corresponding pivotal movement of at least some of said wheels of said row.

[c32] The method of claim 31, wherein said at least one row comprises at least two rows and said at least one of said wheels comprises wheels of two adjacent rows, wherein rotation of said drive gear causes pivotal movement of said two wheels and wherein said pivotal movement of said two wheels causes said corresponding translational movement of respective rack members which in turn causes rotation of the other wheels in said at least two rows.

[c33] The method of claim 28, including installing said diverter system via insertion of a diverter system module between opposite sidewalls of said conveyor section.

[c34] The method of claim 33 including providing a control for controlling said diverter system, and mounting said control at said conveyor section and generally beneath the location where said diverter system is mounted.